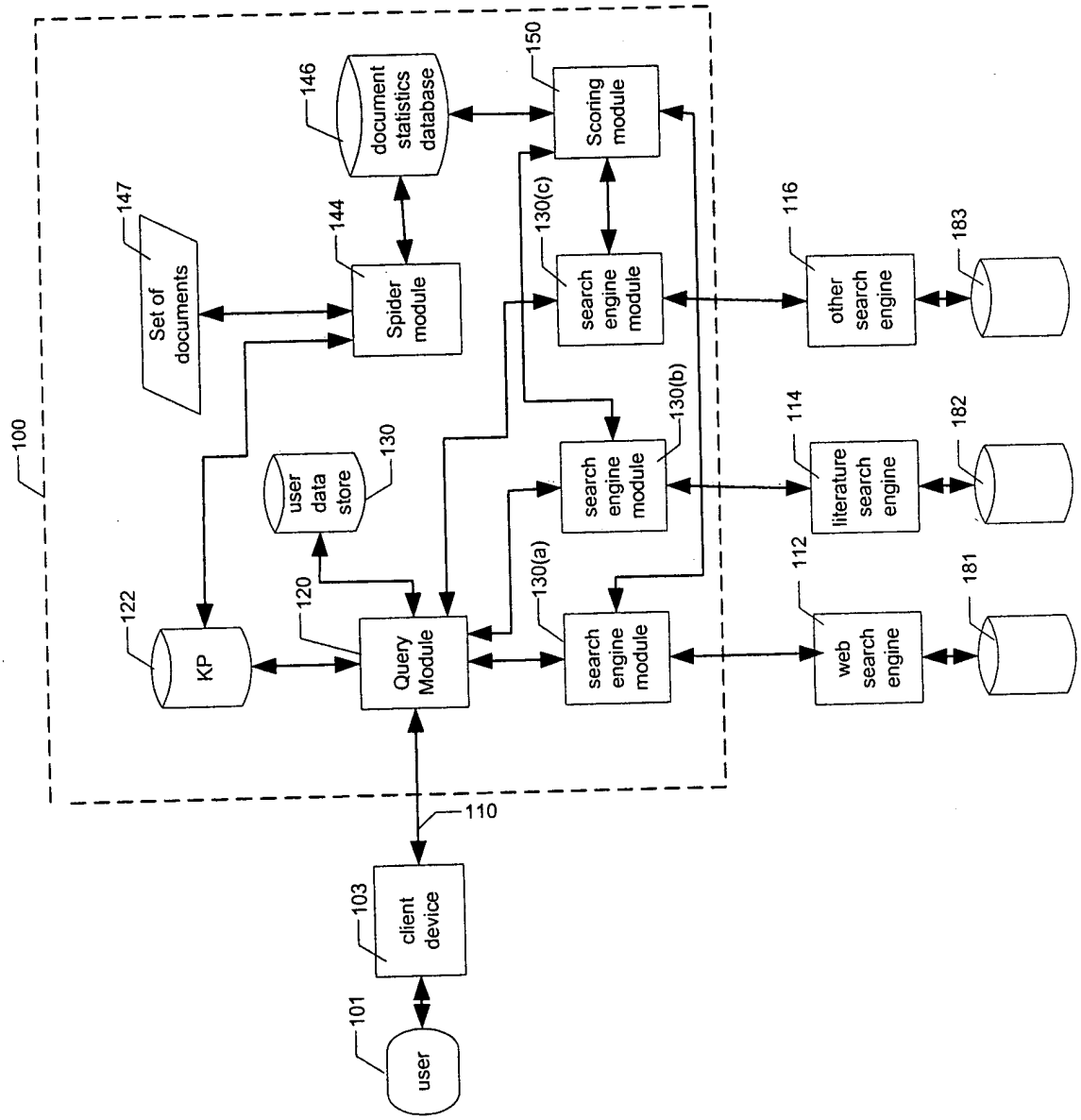
FIG. 1


100
146
document statistics database
150
Scoring module
147
Set of documents
144
Spider module
130(c)
search engine module
116
other search engine
183
130(b)
search engine module
114
literature search engine
182
130
user data store
120
130(a)
search engine module
112
web search engine
181
122
KP
Query Module
110
103
client device
101
user

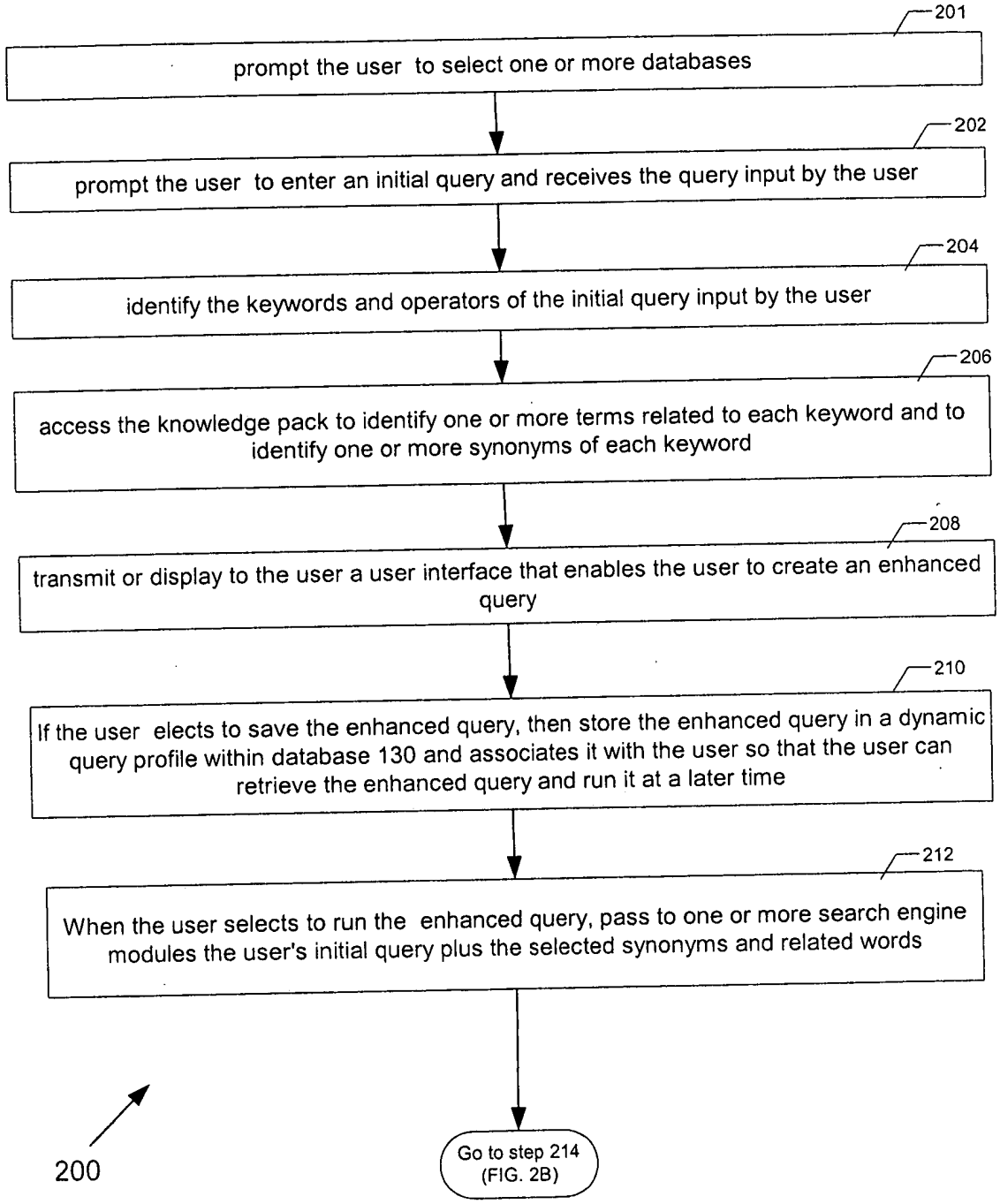
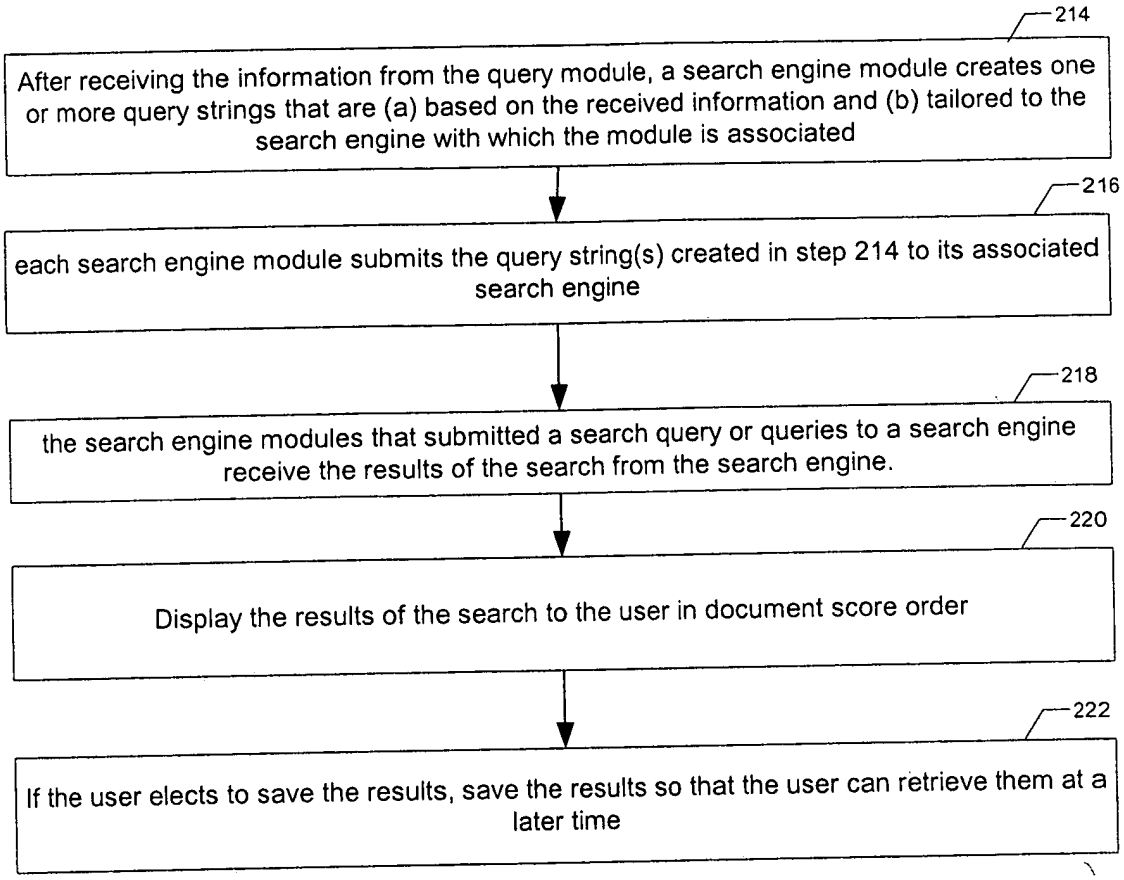

201
prompt the user to select one or more databases
202
prompt the user to enter an initial query and receives the query input by the user
204
identify the keywords and operators of the initial query input by the user
206
access the knowledge pack to identify one or more terms related to each keyword and to identify one or more synonyms of each keyword
208
transmit or display to the user a user interface that enables the user to create an enhanced query
210
If the user elects to save the enhanced query, then store the enhanced query in a dynamic query profile within database 130 and associates it with the user so that the user can retrieve the enhanced query and run it at a later time
212
When the user selects to run the enhanced query, pass to one or more search engine modules the user's initial query plus the selected synonyms and related words
200
Go to step 214 (FIG. 2B)

FIG. 2A


214
After receiving the information from the query module, a search engine module creates one or more query strings that are (a) based on the received information and (b) tailored to the search engine with which the module is associated
216
each search engine module submits the query string(s) created in step 214 to its associated search engine
218
the search engine modules that submitted a search query or queries to a search engine receive the results of the search from the search engine.
220
Display the results of the search to the user in document score order
222
If the user elects to save the results, save the results so that the user can retrieve them at a later time

FI . 2B

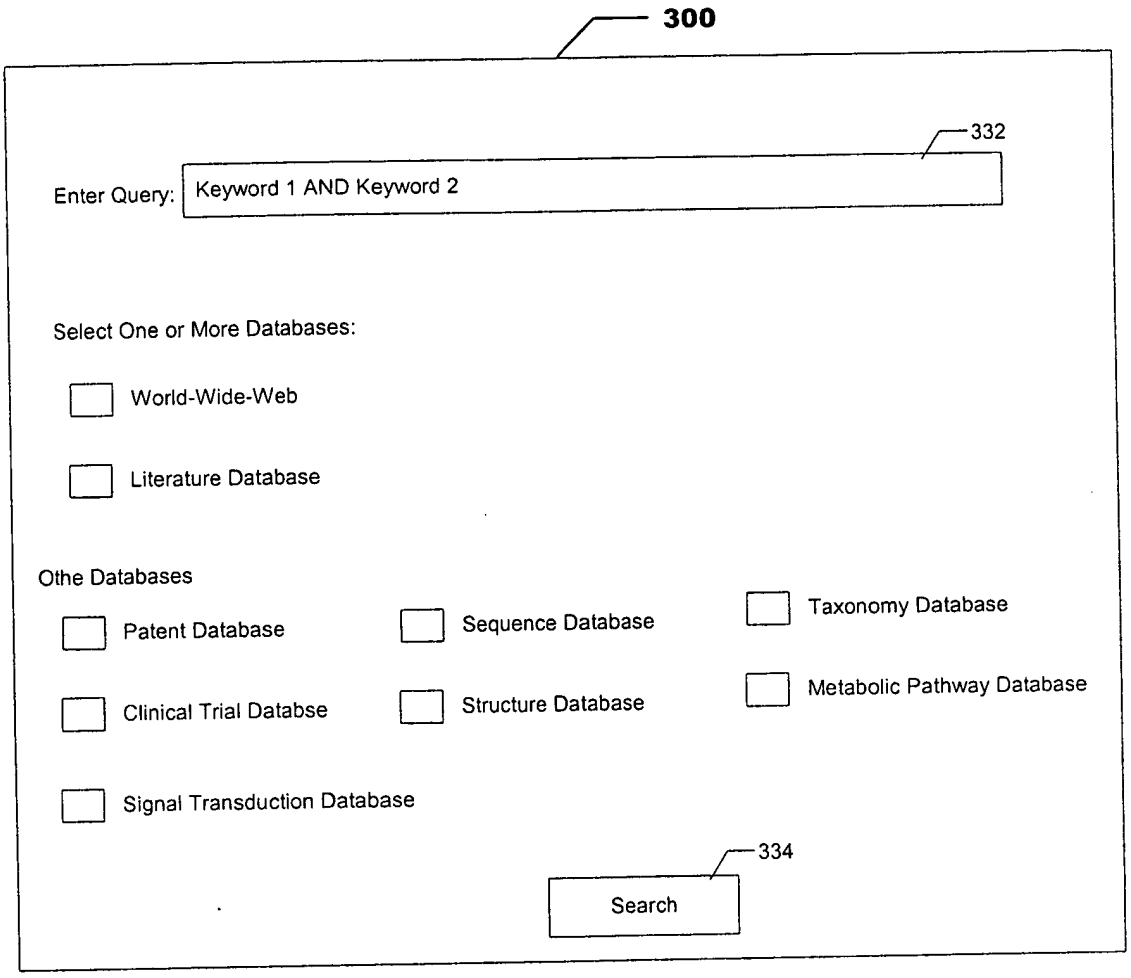

300
332
Enter Query:
Keyword 1 AND Keyword 2
Select One or More Databases:
World-Wide-Web
Literature Database
Othe Databases
Patent Database
Sequence Database
Taxonomy Database
Clinical Trial Databse
Structure Database
Metabolic Pathway Database
Signal Transduction Database
334
Search

FIG. 3

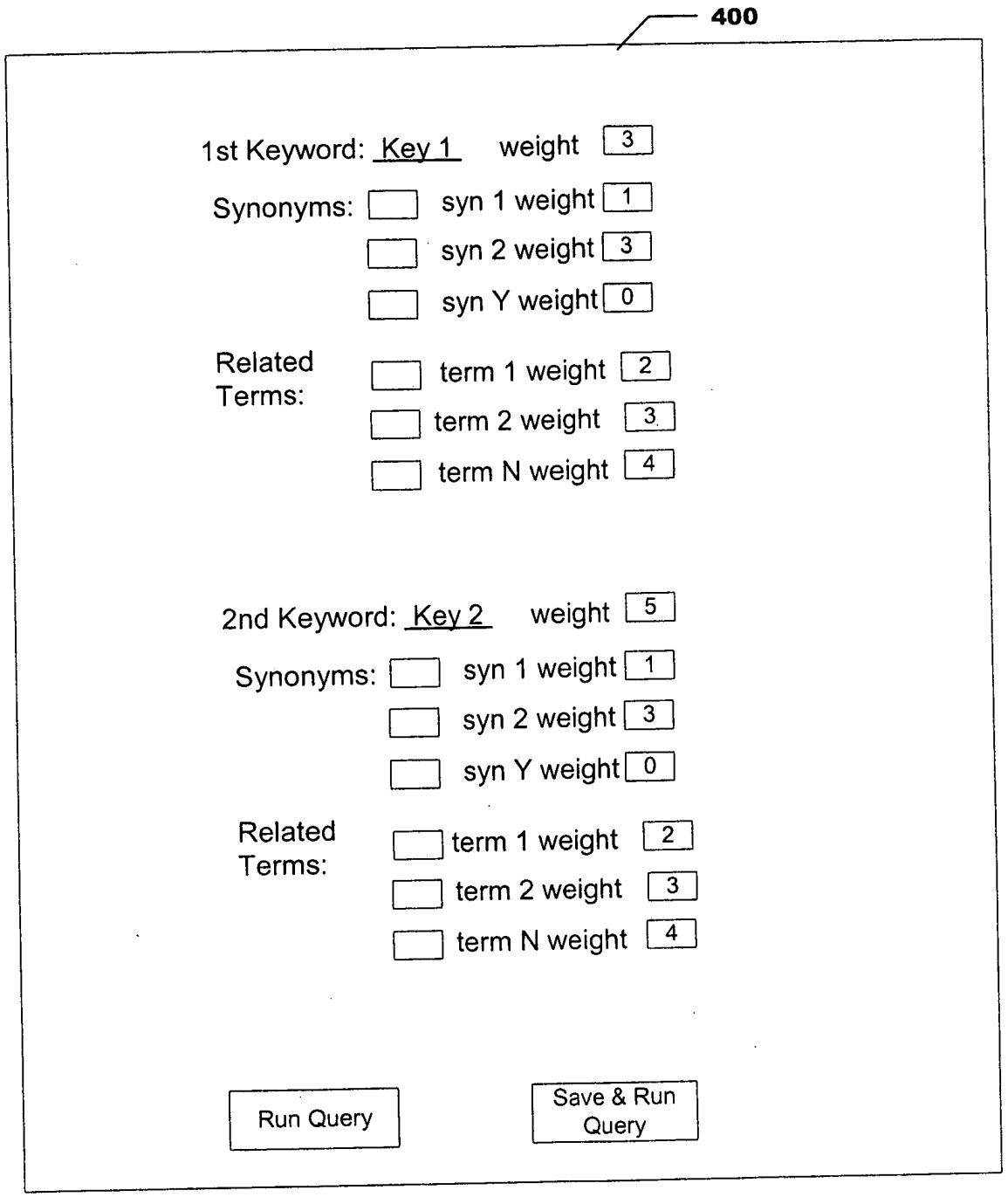

400
1st Keyword: Key 1 weight 3
Synonyms: syn 1 weight 1
syn 2 weight 3
syn Y weight 0
Related Terms:
term 1 weight 2
term 2 weight 3
term N weight 4
2nd Keyword: Key 2 weight 5
Synonyms: syn 1 weight 1
syn 2 weight 3
syn Y weight 0
Related Terms:
term 1 weight 2
term 2 weight 3
term N weight 4
Run Query
Save & Run Query

FIG. 4

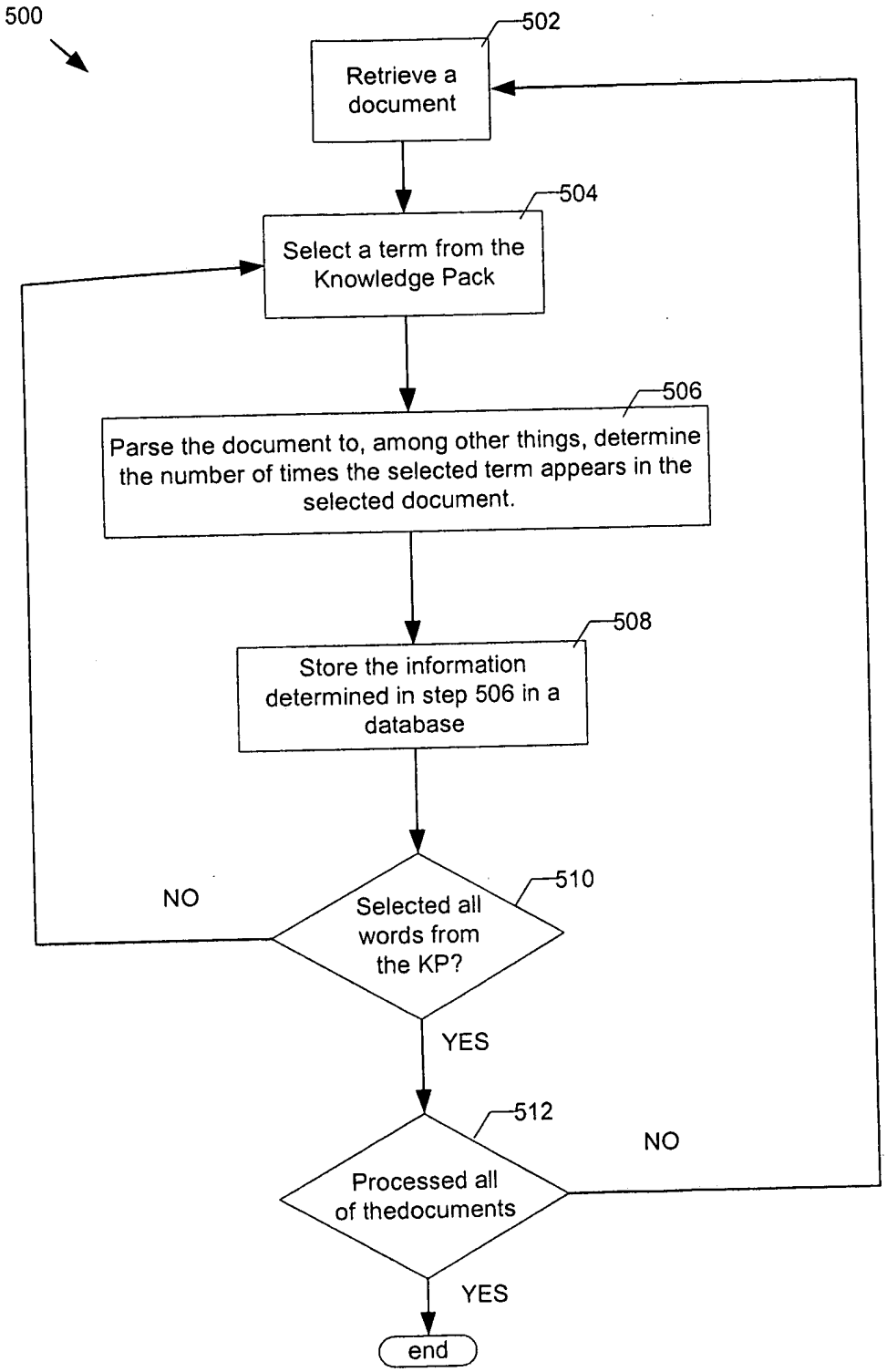

500
502
Retrieve a document
504
Select a term from the Knowledge Pack
506
Parse the document to, among other things, determine the number of times the selected term appears in the selected document.
508
Store the information determined in step 506 in a database
510
Selected all words from the KP?
NO
YES
512
Processed all of thedocuments
NO
YES
end

FIG. 5

600

Doc ID	KP Term	In Title?	In Figure Legend?	Abstract Frequency	Main Body Frequency
Doc #1	Term 1	Yes	No	0	7
Doc #1	Term 12	No	Yes	0	2
Doc #1	Term 23	No	Yes	0	2
Doc #1	Term 44	No	No	3	15
Doc #1	Term 100	No	No	2	13
Doc #2	Term 10	No	No	1	34
...					
Doc #N	Term 12834	No	No	2	12

FIG. 6

700

M1	Number of Keywords in the Abstract			
Number of Related Words in the Abstract	<3	2> <5	4> <10	>9
<4	0.2	0.3	2.0	2.5
3> <7	2.5	2.6	4.7	5.2
6> <11	5.0	5.0	9.7	10.3
>10	10.0	12.0	13.0	15.0

702

M2	Number of Keywords in the Document			
Number of Related Words in the Document	<15	14> <25	24> <51	>50
<17	0.2	0.3	1.0	3.5
16> <30	2.5	2.6	3.7	6.2
29> <60	5.0	5.0	6.7	13.3
>59	10.0	12.0	11.0	17.0

FIG. 7

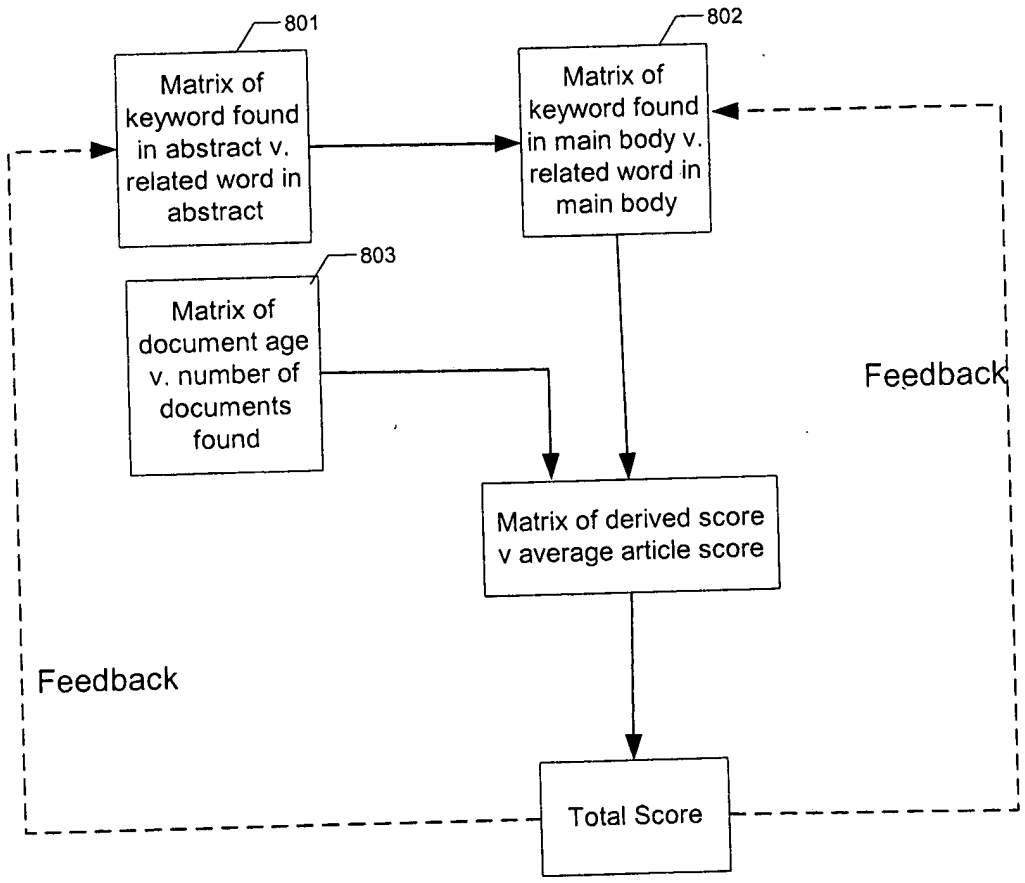

801
Matrix of keyword found in abstract v. related word in abstract
802
Matrix of keyword found in main body v. related word in main body
803
Matrix of document age v. number of documents found
Matrix of derived score v average article score
Total Score
Feedback
Feedback

FIG. 8

Document ID:	Doc #1
Title:	Document title
Score:	24
Document Date:	31 Oct. 2002
Total words:	6942
Abstract Frequency:	HIV(3), AIDS(5)
Main Body Frequency	HIV(34), AIDS(45)
Legend:	HIV, AIDS
Other scientific terms:	RT(57), 3TC(44), Resistance(43), M184I(35), Complex(32) ...

Document ID:	Doc #312
Title:	Document title
Score:	22
Document Date:	01 Nov. 1967
Total words:	7364
Abstract Frequency:	HIV(1), AIDS(1)
Main Body Frequency	HIV(23), AIDS(34)
Legend:	HIV
Other scientific terms:	RT(57), 3TC(44), Resistance(43), Model(25), Inhibitor(21) ...

Document ID:	Doc #121
Title:	Document title
Score:	19
Document Date:	13 May 1999
Total words:	324
Abstract Frequency:	HIV(2), AIDS(1)
Main Body Frequency	HIV(14), AIDS(8)
Legend:	AIDS
Other scientific terms:	CDNA(100), NNRTI(35), Structure(29), Crystal(14) ...

•
•
•

FIG. 9

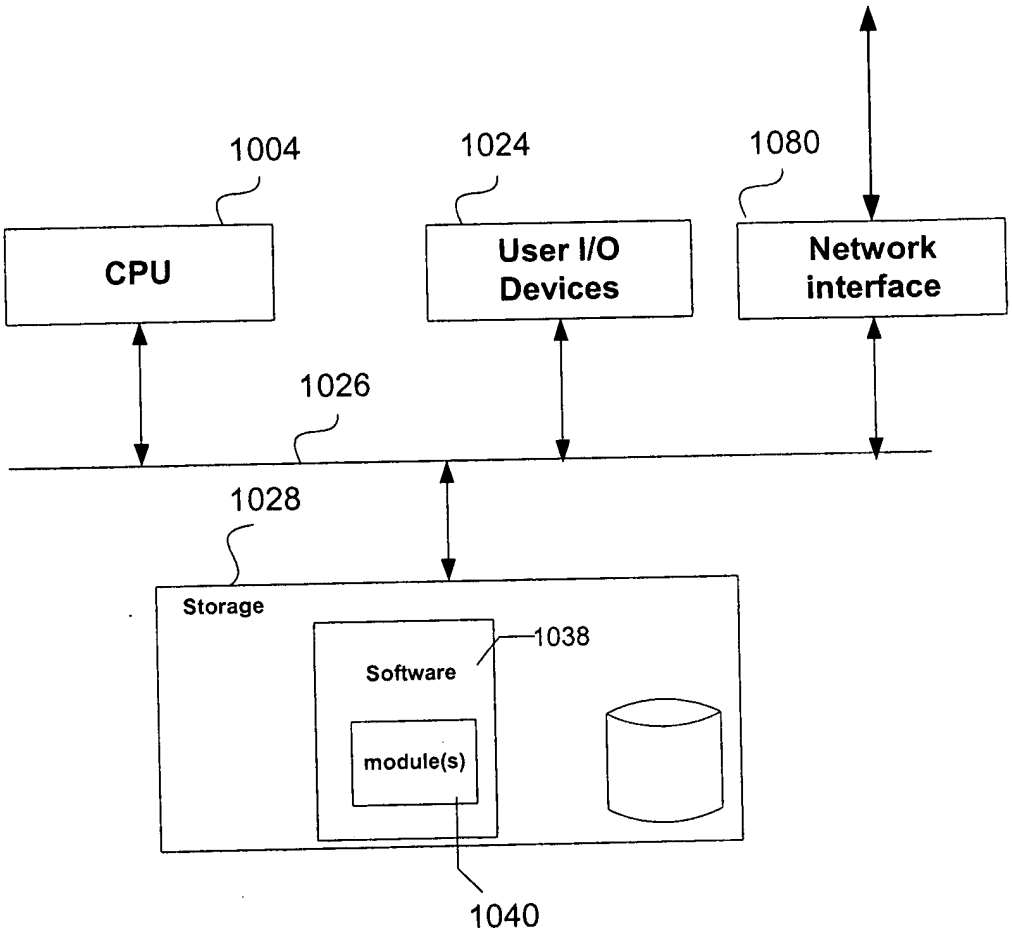

1004
1024
1080
CPU
User I/O Devices
Network interface
1026
1028
Storage
1038
Software
module(s)
1040

FIG. 10